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John W. Marshall

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CESARI AND MCKENNA, LLP
88 BLACK FALCON AVENUE
BOSTON, MA 02210

EXAMINER

NGUYEN, DUSTIN

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. Claims 1-10 and 13-34 are presented for examination.

Claim Objections

2. Claim 17 is objected to because of the following informalities: “The system as defined in claim 15” should be removed from the preamble of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: modifying the packet header data while the packet header data being transfer.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 13, 20, 22-24 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Karol et al. [US Patent No 6,122,275].

6. As per claim 1, Karol discloses the invention as claimed including a method for modifying packet header data transferred from a context memory internal to a forwarding engine to an output buffer of the forwarding engine [i.e. perform function on incoming cell and output on outgoing cell] [Figure 1; Abstract; col 1, lines 63-65], the method comprising the steps of:

reading one or more instructions, by a processor of the forwarding engine, each instruction indicating an operation to modify the packet header data [i.e. opcode control circuit selects where opcode will be accepted from incoming cell or from look up table] [160, Figure 1; and col 3, lines 15-18];

generating, in response to the one or more instructions, one or more commands wherein each command is associated with the operation to modify the packet header data [i.e. opcode control circuit generates ALU control word] [col 3, lines 18-22; and claim 3];

placing the commands in a data structure [i.e. ALU control word] [col 2, lines 61-65] ;

initiating a transfer of the packet header data from the context memory internal to the forwarding engine to the output buffer of the forwarding engine [i.e. real time processing of incoming and outgoing packets] [Abstract; col 7, lines 46-55; and claim 1]; and

performing, by a device in the forwarding engine operating independently of the processor, the operations associated with the one or more commands contained in the data structure to modify the packet header data as directed by the one or more commands while the packet header data is being transferred from the context memory of the forwarding engine to the output buffer of the forwarding engine [i.e. ALU circuit performs computation and updates with result, outgoing cell may be deleted or updated with the result] [130, Figure 1; col 2, lines 63-col 3, lines 9; col 4, lines 35-42; and claim 3].

7. As per claim 2, Karol discloses acquiring the packet header data from the context memory internal to the forwarding engine [110, Figures 1 and 3; and col 2, lines 50-55].

8. As per claim 3, Karol discloses generating a bit mask associated with the acquired packet header data; and transferring the bit mask and the acquired packet header data to the output buffer of the forwarding engine [i.e. mask field] [col 6, lines 1-13].

9. As per claim 13, it is rejected for similar reasons as stated above in claim 1.

10. As per claim 20, it is rejected for similar reasons as stated above in claim 3.

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11. As per claims 22-24, they are rejected for similar reasons as stated above in claims 1-3.

12. As per claims 28-30, they are rejected for similar reasons as stated above in claims 1-3.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 4, 7, 9, 10, 14, 15, 18, 21, 25 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karol et al. [US Patent No 6,122, 275], in view of Henderson et al. [US Patent Application No 2004/0042490].

15. As per claim 4, Karol does not specifically disclose wherein the data structure comprises one or more entries wherein each entry is associated with a command and the entry contains information associated with a range of addresses and an operation code that are associated with the command. Henderson discloses wherein the data structure comprises one or more entries wherein each entry is associated with a command and the entry contains information associated with a range of addresses and an operation code that are associated with the command [Figures 6 and 7; and paragraphs 0049, 0054 and 0055]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Karol and Henderson

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because the teaching of Henderson would enable a more efficient and adaptive system for processing packet [Henderson, paragraph 0003].

16. As per claim 7, Henderson discloses wherein each entry contains a length and a source address associated with the command [i.e. start of edit and size of edit] [Figure 6; and paragraph 0049].

17. As per claim 9, Henderson discloses wherein the data structure is a table [Figure 7; and paragraph 0007].

18. As per claim 10, Henderson discloses clearing the data structure [i.e. packet context can be cleared] [paragraphs 0039 and 0055].

19. As per claim 14, it is rejected for similar reasons as stated above in claim 9.

20. As per claim 15, it is rejected for similar reasons as stated above in claim 4.

21. As per claim 18, it is rejected for similar reasons as stated above in claim 7.

22. As per claim 21, Henderson discloses wherein the output buffer comprises: data steering logic configured to use the bit mask to identify valid data contained in the transferred packet header data; a working register coupled to the data steering logic and configured to hold the

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valid packet header data transferred from the data steering logic; and an output queue coupled to the working register and configured to hold the valid packet header data transferred from the working register [Figures 10 and 11; and paragraphs 0041 and 0080-0086].

23. As per claim 25, it is rejected for similar reasons as stated above in claim 4.

24. As per claim 31, it is rejected for similar reasons as stated above in claim 4.

25. Claims 5, 16, 26, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karol et al. [US Patent No 6,122,275], in view of Henderson et al. [US Patent Application No 2004/0042490], and further in view of Ueno [US Patent Application No 2002/0009050].

26. As per claim 5, Karol and Henderson do not specifically disclose the step of: searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired packet header data; if a matching entry is found, determining if an operation code contained in the matching entry indicates a delete data operation; and if so, generating a delete bit mask that represents data that is deleted in the acquired packet header data and transferring the delete bit mask and the acquired packet header data to the output buffer. Ueno discloses the step of: searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired packet header data; if a matching entry is found,

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determining if an operation code contained in the matching entry indicates a delete data operation; and if so, generating a delete bit mask that represents data that is deleted in the acquired packet header data and transferring the delete bit mask and the acquired packet header data to the output buffer [i.e. the label stack deletion or pop operation] [Figures 4 and 5; and paragraphs 0028, 0032, 0033 and 0035]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Karol, Henderson and Ueno because the teaching of Ueno would enable information or data to be removed correctly to maintain data integrity.

27. As per claims 16, 26 and 32, they are rejected for similar reasons as stated above in claim 5.

28. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karol et al. [US Patent No 6,122,275], Henderson et al. [US Patent Application No 2004/0042490], and further in view of Deforche et al. [US Patent Application No 2005/0232303].

29. As per claim 8, Karol and Henderson do not specifically disclose the step of: searching the data structure for an entry containing information associated with a range of addresses specified by the combination of the length and the source address contained in the entry that matches a range of addresses associated with the acquired packet header data. Deforche discloses the step of: searching the data structure for an entry containing information associated

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with a range of addresses specified by the combination of the length and the source address contained in the entry that matches a range of addresses associated with the acquired packet header data [paragraphs 0185 and 0186]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Karol, Henderson and Deforche because the teaching of Deforche would provide a low overhead on processing time and/or low allocation of processing resource [Deforche, paragraphs 0005-0007].

30. As per claim 19, it is rejected for similar reasons as stated above in claim 8.

31. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Nguyen whose telephone number is (571) 272-3971. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached at (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Dustin Nguyen/
Primary Examiner, Art Unit 2454